

## EXHIBIT 2

**In The Matter Of:**

*Fair Fight Action v.  
Raffensperger*

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*Stephen C. Graves, Ph.D.  
February 25, 2020*

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*Regency-Brentano, Inc.  
13 Corporate Square  
Suite 140  
Atlanta, Georgia 30329  
404.321.3333*



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11

1 the report at all with Doctor Stewart?

2 A. No.

3 Q. So is it fair to say that your analysis of  
4 the Fulton County wait times, as you talk  
5 about in your report, was done in some ways  
6 in a vacuum without discussion of any of  
7 the authors of the BPC report?

8 A. Yes.

9 Q. You've also attached to your report your  
10 curriculum vitae. Is the one we received,  
11 looks like the draft date was April 2019,  
12 is it still generally accurate?

13 A. Yes.

14 Q. Your principal -- you identify your  
15 principal field of interest as operations  
16 management and applied operations research.  
17 What does that mean in layman's terms?

18 A. Well, I'm primarily interested in the study  
19 of operations in terms of design, planning,  
20 improvement of operations, and that can be  
21 in the context of manufacturing systems,  
22 service systems, distribution systems,  
23 logistics systems.

24 Q. Okay. You don't have any -- you're not  
25 opining, though, on anything involving why

Stephen C. Graves, Ph.D. - February 25, 2020

47

1 MR. DuBOSE: Objection.

2 A. I'll try, and let me take an example.

3 Q. Sure.

4 A. So I have a coin. I want to know whether  
5 or not the coin is fair or not, and that's  
6 all I care about. Okay? So then  
7 statistically, I might flip it 100 times,  
8 and, you know, if I want to have some level  
9 of confidence whether it's fair or not,  
10 I'll set up, let's say, sort of rejection  
11 limits. I think I simulated this before  
12 but if I want to have sort of five percent  
13 confidence level, then I would reject the  
14 null hypothesis that it's fair if after I  
15 flip it 100 times, I have 60 heads or I  
16 have 60 tails so --

17 Q. Something's wrong?

18 A. Yeah, something's wrong. It's either  
19 coming up heads too often or tails too  
20 often, and that's sort of what we mean by a  
21 two-sided test, and it would be appropriate  
22 if, again, I have this coin and all I care  
23 about is is it a fair coin or not.

24 So an alternative setting is, think  
25 about I'm in a casino setting and I want to

1 know whether this coin favors the house or  
2 not, and by favoring the house it comes up  
3 heads too often, so then if I was doing  
4 statistical tests there, and if I wanted  
5 this five percent confidence level, if I  
6 flipped it 100 times, then I would reject  
7 the null hypothesis that it's fair if I  
8 came up with 58 heads.

9 Q. Because 58 exceeds 50 or 55?

10 A. Right, but 55 could happen by chance but if  
11 it were 58 heads, then I would think the  
12 house was up to something and it was fishy,  
13 and that's what we mean by a one-sided  
14 test. In some sense the -- well, the  
15 question was posed differently. The first  
16 question was is this coin fair or not, and  
17 someone says I don't have any other  
18 information. I don't have a leaning or a  
19 horse in the game, type thing, whereas this  
20 other setting is what I want to know is is  
21 this coin favoring the house or not, and if  
22 that's the question, then I use this  
23 one-sided test.

24 Q. Okay.

25 A. And then back to this. It seems to me that

1        what we care about here is, you know, do  
2        African American voters wait longer or not.  
3        At polling locations with predominantly  
4        African American voters, are they waiting  
5        longer than other polling locations, and if  
6        that's really what we care about, then in  
7        terms of statistical tests, we should use  
8        this one-sided test, and so that's the  
9        nature of my objection, whereas in the  
10       Trende expert report, everything he did was  
11       accurate but he was relying on a two-sided  
12       test.

13    Q.   I see.   Okay.   So the two-sided test, going  
14        back to your coin analysis, is you just  
15        flip it up 100 times and you make a  
16        determination if it's -- you're not looking  
17        to see if it favors one side or the other,  
18        just is it fair?

19    A.   Right, and say that could be biased one way  
20        or other way and both those ways mean it's  
21        unfair.

22    Q.   So your analysis then is that, forgive me,  
23        your analysis is the two-sided test, which  
24        is are African Americans waiting longer at  
25        polling locations than whites in Fulton

1 County, is that accurate?

2 A. No, my analysis is what I would call a  
3 one-sided test.

4 Q. Okay. Thank you. Your analysis looks to,  
5 rather than me explain it, you tell me how  
6 your analysis is the one-sided test.

7 A. In statistics we have two hypothesis and  
8 we're trying to usually reject, see about  
9 rejecting the null hypothesis, and here the  
10 null hypothesis would be that there's not a  
11 positive relationship between wait time and  
12 the percent of African American voters at a  
13 polling location, and we're going to test  
14 that vis a vis an alternative hypothesis  
15 where the alternative hypothesis is there  
16 is a positive relationship between wait  
17 time and the percent of African American  
18 voters, so that's what I'm testing.

19 Q. Alright. Okay.

20 A. Whereas, I would say, do you want me to go  
21 on?

22 Q. Yes, whereas Trende --

23 A. Trende's null hypothesis is that there's no  
24 relationship between wait time and the  
25 percent of African American voters, that's

1 his null hypothesis, and then his  
2 alternative hypothesis against which he's  
3 testing is that there is a relationship and  
4 it could be either positive or negative.

5 Q. And as I think I heard you say and I read  
6 in the report, in terms of the math, you  
7 don't have any criticism of Trende's  
8 report, it's just how he's analyzing the  
9 topic, is that a fair way to put it?

10 A. Yes. I'm not sure I would say how he's  
11 analyzing but how he set up the analysis,  
12 how he's framed the question.

13 Q. Okay. You then, and this may go into that  
14 same line of questions we just had, but on  
15 Page 3 of your report, the substance is  
16 Page 4 of the document, in the third full  
17 paragraph starting with "thus." Midway  
18 through it says "This is a less stringent  
19 test but is more relevant for the given  
20 question at hand."

21 A. Yes.

22 Q. That means your test is a less stringent  
23 test?

24 A. Yes.

25 Q. What makes it less stringent than Trende's?